



*AUTOMATIC SYSTEMS
LABORATORIES INC.*

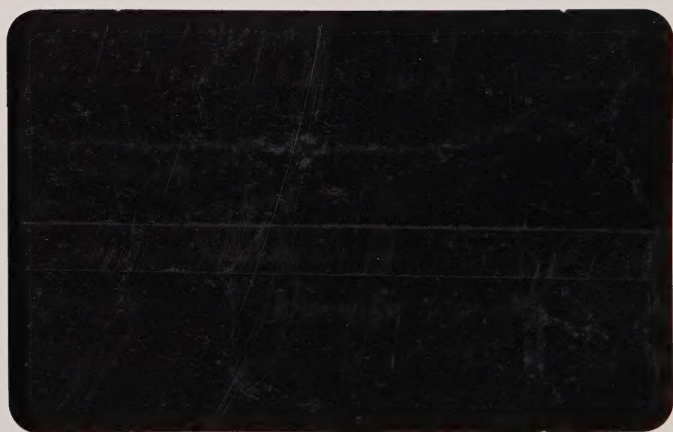
**Model B125 X
Metal Block Calibrator**

Operator's Handbook

MP MASTER



MA34186





**AUTOMATIC SYSTEMS
LABORATORIES**

**Model B125 X
Metal Block Calibrator
Operator's Handbook**

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Automatic Systems Laboratories

B125 Metal Block Calibrator Operator's Handbook

Thank you for purchasing the ASL B125 Metal Block Calibrator.

If you have any comments regarding this or any other ASL product please feel free to contact us.

Telephone: 508 658 0000

Fax: 508 658 5444





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GENERAL

This instrument has been designed and tested to comply with the Electromagnetic Compatibility Directive 89/336/EEC and Low Voltage Directive 93/68EEC in accordance with EN 61010 -1 :1995 relating to the safety requirements for electrical equipment for measurement, control and laboratory use.

Before connecting the instrument to the mains supply please ensure the following safety precautions have been read and understood.

SAFETY SYMBOLS

The following symbols are used to describe important safety aspects of this instrument, these symbols appear on the instrument and in the operation instructions.



Attention Symbol: Indicates a potentially hazardous condition exists and that it is necessary for the operator to refer to the instruction manual to ensure the safe operation of this instrument.



Hot Surface Warning: Indicates a hot surface that may be at a temperature capable of causing burns, refer to the instruction manual for further safety information.



Caution Risk of Electric Shock: Indicates hazardous voltages may be present, refer to the instruction manual for further safety information.



Protective Conductor Terminal: For protection against electrical shock during a fault condition. This symbol is used to indicate terminals that must be connected to electrical ground before operating equipment.

SUMMARY OF SAFETY PRECAUTIONS

The following general safety precautions must be observed while operating or servicing this instrument. Failure to comply with these precautions may result in personnel injury or death.

INSTRUMENT ELECTRICAL EARTH

This instrument is designed as a Class 1 electrical safety insulation device. To ensure continued protection from electric shock the instrument chassis must be connected to an electrical ground. The instrument is supplied with an AC power cable with an earth connection.

LIVE CIRCUITS DANGER

Do not connect the power supply to or operate this instrument with the protective covers removed. Component replacement and internal adjustments must be made by qualified service personnel. Do not replace components with the power cable connected. Under certain conditions, dangerous voltages may exist with the power cable removed. To avoid injuries always disconnect power and discharge circuits before touching them.

DO NOT MODIFY THIS INSTRUMENT OR SUBSTITUTE PARTS

Because of the danger of introducing additional hazards; do not perform any unauthorized modification or install substitute parts to the instrument. Only fuses with the rated current, voltage and specified type should be used, failure to do so may cause an electric shock or fire hazard. Return the instrument to Automatic Systems Laboratories for service and repair to ensure the safety features are maintained.

DO NOT OPERATE IN EITHER DAMP OR EXPLOSIVE ENVIRONMENTS

This instrument is not designed to operate while wet, in an environment of condensing humidity or in the presence of flammable gases or vapors. The operation of this instrument in such an environment constitutes a safety hazard.

HOT SURFACES DANGER

Equipment marked with a Hot Surface warning symbol should be regarded as operating at temperatures capable of causing burns. Do not touch, handle or transport hot components or liquids until they are at safe temperatures. Care should be taken not to spill or splash water or volatile fluids on or into hot surfaces or liquids.

CERTIFICATION

Automatic Systems Laboratories certifies that this product met its published specifications at the time of shipment from our factory. All calibration measurements performed in the manufacture of this instrument are traceable to the National Physical Laboratory (London).

ASSISTANCE

For after sales support and product service assistance please contact Automatic Systems Laboratories Customer Support Group. Contact information is provided in the operation instruction manual.

ALLGEMEIN

Dieses Gerät wurde so entworfen und getestet, daß es der Elektromagnetischen Verträglichkeits-Richtlinie 89/336/EEC und der Niederspannungs-Richtlinie 93/68EEC in Übereinstimmung mit EN 61010 -1 :1995 bzgl. der Sicherheitsanforderungen für elektrisches Gerät zum Messen, Regeln und für den Laborgebrauch entspricht.

Bevor das Gerät an das Stromnetz angeschlossen wird, stellen Sie bitte sicher, daß die folgenden Sicherheitsvorkehrungen gelesen und verstanden worden sind.

SICHERHEITSSYMBOL

Die folgenden Symbole werden zur Beschreibung wichtiger Sicherheits-aspekte für dieses Gerät benutzt. Diese Symbole erscheinen auf dem Instrument und in den Betriebsanleitungen.



Achtung-Symbol: Zeigt an, daß ein potentiell gefährlicher Zustand besteht und daß es für den Betreiber notwendig ist, sich in der Betriebsanleitung zu informieren, um den sicheren Betrieb dieses Geräts zu gewährleisten.



Warnsymbol "Heiße Oberfläche": Zeigt eine heiße Oberfläche mit einer Temperatur an, die zu einem Brand führen könnte. Lesen Sie bitte die Betriebsanleitung für weitere Sicherheitsinformationen.



Risiko eines Elektrischen Schlages: Zeigt an, daß gefährliche Spannungen auftreten können. Lesen Sie bitte die Betriebsanleitung für weitere Sicherheitsinformationen.



Schutzleiteranschluß: Zum Schutz gegen einen elektrischen Schlag während eines Störungszustands. Mit diesem Symbol sind Anschlüsse gekennzeichnet, die vor der Inbetriebnahme des Geräts an die elektrische Erdung angeschlossen werden müssen.

ZUSAMMENFASSUNG DER SICHERHEITSVORKEHRUNGEN

Die folgenden allgemeinen Sicherheitsvorkehrungen müssen während des Betriebs bzw. der Wartung dieses Instruments befolgt werden. Das Versäumnis, diese Vorkehrungen zu befolgen, kann zu Körperverletzungen oder zum Tod führen.

ELEKTRISCHE ERDUNG DES GERÄTS

Dieses Gerät ist gemäß der Isolationsklasse 1 konstruiert. Um fortlaufenden Schutz gegen elektrische Schläge zu gewährleisten, muß das Gerätechassis an eine elektrische Erdung angeschlossen werden. Das Gerät wird mit einem Wechselstromkabel mit Schutzleiteranschluß geliefert.

GEFAHR DURCH SPANNUNGSFÜHRENDE STROMKREISE

Schließen Sie dieses Gerät nicht an das Stromnetz an oder betreiben es, während die Schutzabdeckungen entfernt sind. Komponentenersatz und interne Geräteeinstellungen dürfen nur von autorisiertem Wartungspersonal ausgeführt werden. Unter bestimmten Bedingungen können gefährliche Spannungen bestehen, während das Stromkabel entfernt ist. Zur Vermeidung von Verletzungen unterbrechen Sie vor jedem Berühren interner Komponenten die Stromzufuhr und nehmen Sie einen Potentialausgleich vor.

VERÄNDERN SIE DIESES GERÄT NICHT UND ERSETZEN SIE KEINE TEILE

Um die Entstehung zusätzlicher Gefahrenquellen zu vermeiden, nehmen Sie bitte keine ungenehmigten Modifikationen vor und installieren Sie keine Ersatzteile in dieses Gerät. Nur Sicherungen mit der angegebenen Strom- und Spannungsstärke und des spezifizierten Typs dürfen benutzt werden. Versäumnis dies zu tun, kann zu elektrischem Schlag oder Feuergefahr führen. Zur Wartung und Reparatur schicken Sie das Gerät bitte an Automatic Systems Laboratories zurück, um sicherzustellen, daß alle Sicherheitseigenschaften erhalten bleiben.

NICHT IN FEUCHTEN ODER EXPLOSIVEN UMGEBUNGEN BETREIBEN

Dieses Gerät ist nicht dazu ausgelegt, bei Feuchtigkeit, in einer Umgebung mit Kondensationsfeuchtigkeit oder im Bereich entzündbarer Gase oder Dämpfe betrieben zu werden. Das Betreiben des Gerätes in einer solchen Umgebung stellt eine Sicherheitsgefahr dar.

GEFAHR DURCH HEISSE OBERFLÄCHEN

Geräte, die mit dem Warnsymbol "Heiße Oberfläche" markiert sind, können Betriebstemperaturen erreichen, die zu Verbrennungen führen können. Berühren bzw. transportieren Sie heiße Komponenten oder Flüssigkeiten erst bei einer sicheren Temperatur. Schütten oder spritzen Sie kein Wasser oder verdunstende Flüssigkeiten auf heiße Oberflächen oder in heiße Flüssigkeiten.

ZERTIFIZIERUNG

Automatic Systems Laboratories bescheinigt, daß dieses Produkt die veröffentlichte Spezifikation zum Verladezeitpunkt ab unserem Werk eingehalten hat.

Alle bei der Herstellung dieses Produkts ausgeführten Kalibrierungen können bis zum National Physical Laboratory (London) rückverfolgt werden.

HILFELEISTUNG

Bitte wenden Sie sich an den Automatic Systems Laboratories Kundenservice (Customer Support Group) zur Unterstützung nach dem Kauf und zur Produktwartungshilfe. Kontaktinformationen finden Sie in der Betriebsanleitung.

INFORMATIONS GENERALES

Cet instrument a été conçu et testé pour être conforme à la directive de compatibilité électromagnétique 89/336/CEE et à la directive de basse tension 93/68CEE, en accord avec la norme EN 61010 -1 :1995 relative aux prescriptions de sécurité des équipements électriques de mesure, de contrôle et d'utilisation en laboratoire.

Avant de brancher cet instrument sur le secteur, veuillez vous assurer d'avoir lu et compris les mesures de sécurité suivantes.

SYMBOLES DE SECURITE

Les symboles suivants sont utilisés pour décrire des aspects importants sur la sécurité de cet instrument. Ils apparaissent sur l'instrument et dans les instructions de fonctionnement.



Symbole d'attention : indique l'existence d'une condition potentiellement dangereuse, et la nécessité pour l'opérateur de se référer au manuel d'instruction afin d'assurer le fonctionnement en sécurité de cet instrument.



Avertissement de surface chaude : indique une surface chaude dont la température peut provoquer des brûlures. Consultez le manuel d'instruction pour de plus amples informations sur la sécurité.



Attention, Risque d'électrochoc : indique l'existence éventuelle de tensions dangereuses. Consultez le manuel d'instruction pour de plus amples informations sur la sécurité.



Terminal de fil neutre : pour la protection contre les électrochocs lors d'une condition défectueuse. Ce symbole est utilisé pour indiquer les terminaux devant être connectés à la terre électrique avant d'utiliser le matériel.

RESUME DES MESURES DE SECURITE

Les mesures de sécurité générales suivantes doivent être respectées lors de l'utilisation ou de l'entretien de cet instrument. Le non respect de ces mesures peut entraîner les blessures ou la mort du personnel.

TERRE ELECTRIQUE DE L'INSTRUMENT

Cet instrument est conçu comme appareil d'isolation de sécurité électrique de classe 1. Pour assurer une protection continue contre les électrochocs, le châssis de l'instrument doit être connecté à une terre électrique. L'instrument est fourni avec un câble d'alimentation de courant alternatif (CA) de contact à la terre.

DANGER DES CIRCUITS SOUS TENSION

Ne branchez pas l'alimentation électrique à cet instrument, ou n'utilisez pas cet instrument sans les enveloppes protectrices. Le remplacement des composants et les ajustements internes doivent être faits par un personnel de surveillance qualifié. Ne remplacez pas les composants lorsque le câble d'alimentation est connecté. Sous certaines conditions, des tensions dangereuses peuvent exister lorsque le câble d'alimentation est retiré. Pour éviter des blessures, déconnectez toujours le courant électrique et déchargez les circuits avant de les toucher.

NE MODIFIEZ PAS CET INSTRUMENT OU NE REMPLACEZ PAS DE PIECES

A cause du risque d'introduction de dangers supplémentaires, n'effectuez aucune modification non autorisée, ou n'installez aucune pièce de substitution sur l'instrument. Seuls les fusibles de courant normal, de tension nominale et de type spécifié doivent être utilisés. Le non respect de cette condition peut provoquer un électrochoc ou un risque d'incendie. Renvoyez l'instrument à Automatic Systems Laboratories pour son service et sa réparation, afin d'assurer que les fonctions de sécurité sont maintenues.

N'UTILISEZ PAS CET INSTRUMENT DANS DES ENVIRONNEMENTS HUMIDES OU EXPLOSIFS

Cet instrument n'est pas conçu pour une utilisation s'il est humide, dans un environnement d'humidité de condensation ou en présence de gaz ou de vapeurs inflammables. L'utilisation de cet instrument dans un tel environnement représente un danger pour la sécurité.

DANGER DES SURFACES CHAUDES

Le matériel marqué d'un symbole d'avertissement de surface chaude doit être regardé comme fonctionnant à des températures capables de provoquer des brûlures. Ne touchez pas, ne manipulez pas ou ne transportez pas des composants ou des liquides chauds tant qu'ils ne sont pas à des températures sûres. Faites attention de ne pas renverser ou asperger de l'eau ou des fluides volatiles sur ou dans des surfaces ou des liquides chauds.

CERTIFICATION

Automatic Systems Laboratories certifie que ce produit répondait aux spécifications publiées au moment du départ de notre usine. Toutes les mesures de calibrage effectuées lors de la fabrication de cet instrument peuvent être trouvées au National Physical Laboratory (à Londres).

ASSISTANCE

Pour un support après-vente et une assistance de maintenance du produit, veuillez contacter le groupe d'assistance client d'Automatic Systems Laboratories. Des informations de contact sont données dans le manuel d'instruction sur le fonctionnement.

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1 Introduction

Automatic Systems Laboratories would like to thank you for purchasing the B125 Metal Block Calibrator. The equipment is supplied in a fully operational state, but ASL strongly suggest these brief operating instructions and guidelines be read before starting to use the apparatus. Should you have any difficulty understanding the instructions, or have any questions regarding the B125 calibrator, please call our customer support group.

2 Safety

WARNING

This apparatus is capable of reaching 125 °C and - 25 °C in normal operation. Burns to the skin can result through careless or negligent use. The B125 has been configured at ASL, only change the configuration settings after reference to this handbook. Please follow the guidelines below as a minimum procedure for safe operation.

- 2.1 Always handle the B125 as if the block and inserts are hot.
- 2.2 Position the B125 in such a way that it cannot be knocked from the bench. Pay careful attention to the positioning of the mains lead to avoid tripping.
- 2.3 Do not cover the fins on the top of the B125 or restrict the air flow.
- 2.4 When removing hot inserts from the block, always place them away from flammable material and beware of boiling water in the wells condensed from earlier cooling.
- 2.5 Do not drop probes or articles down between the fins visible on the top surface of the block. They will become jammed in the fan. Should this occur turn off the power immediately.

3 Specifications

Supply Voltage: 240/115v 50/60 Hz selectable on underside of body.

Temperature range <-25°C to + 125°C (<-13°F to + 257°F) in normal ambient of + 22°C (72 °F).

Stability: +/- 0.050°C.

Well depth: 105mm, suitable for inserts with well depth 100mm.

Well diameter: 2 x 16mm

Fig 1.

Model B125

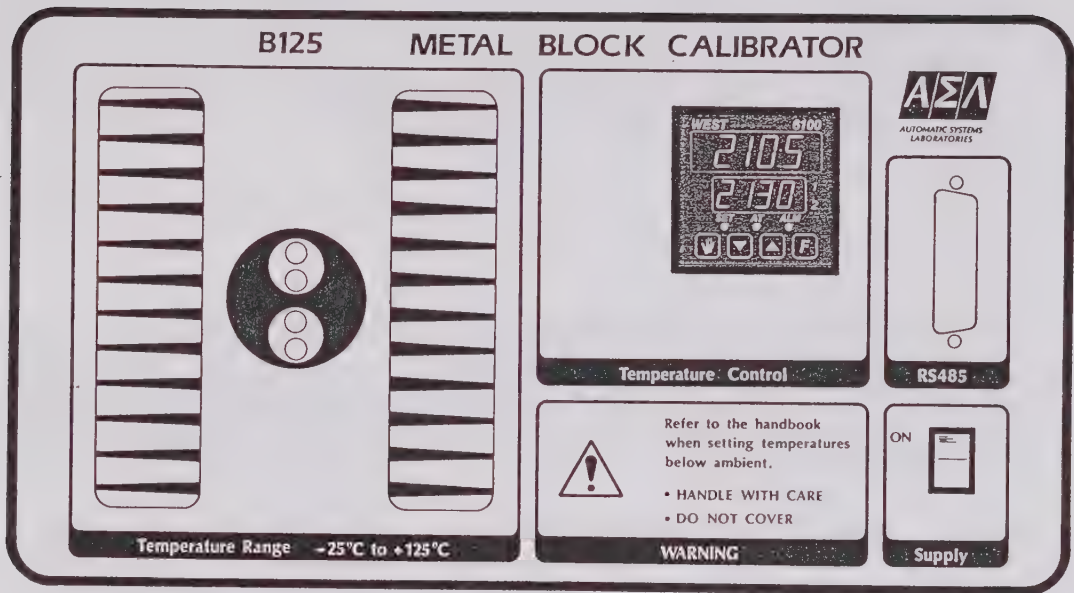
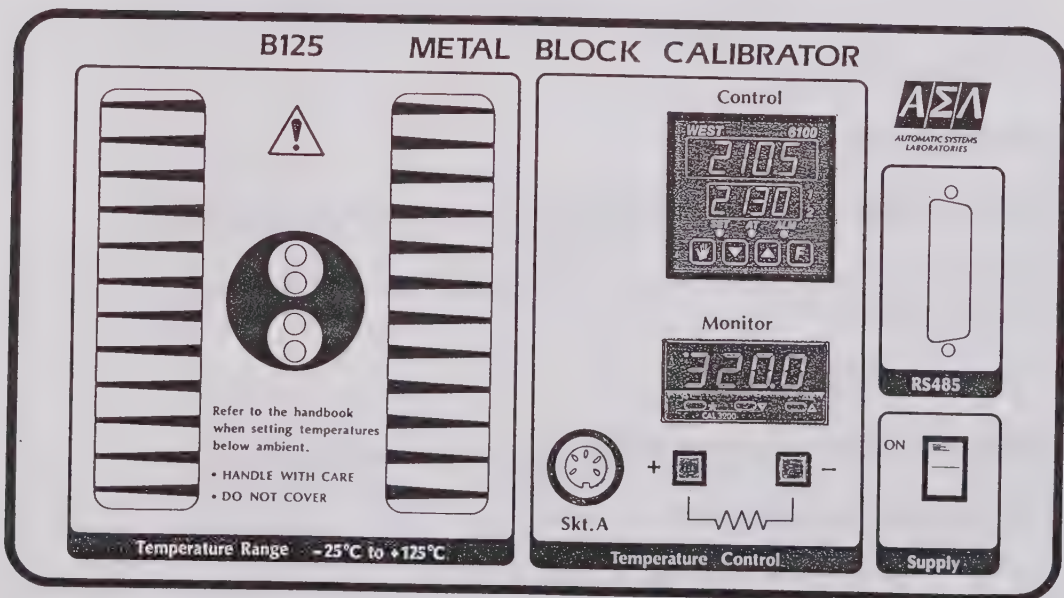


Fig 2.

Model B125 with Independent Indicator



4 Setting up the B125

- 4.1 The calibrator is designed to give best performance when operated in a constant temperature environment without draughts. The calibrator should therefore be positioned away from air conditioners and direct sunlight. A cooler ambient will allow the calibrator to achieve lower temperatures. Please read section 7 of this manual to achieve the best results from the equipment.

4.2 Getting Started

- 4.2.1 Firstly check and adjust the voltage selection switch if necessary. This can be found on the underside of the B125. **WARNING:** Ensure the correct line voltage fuse is fitted before turning on or adjusting the line voltage. Plug in the mains lead and turn on the B125 using the green switch marked supply on the top panel. The cooling fan will start and the controller will start it self check procedure.

Voltage	Fuse
240V ac	T1A (1 Amp Slow Blow)
115V ac	T2A (2 Amp Slow Blow)

4.3 Operating Mode

- 4.3.1 Whilst operating, the controller will show two temperatures on the controller panel, and the supply switch will be illuminated.
- 4.3.2 The temperature shown at the top of the controller display is a block temperature. At start up this can be expected to be close to room temperature unless the B125 has been recently used.
- 4.3.3 The lower of the two displayed temperatures is the controller set point. For safety, all equipment leaving the factory is set to 20°C (68°F). The last setpoint is retained in the controller memory.

4.5 Setting the Temperature

- 4.5.1 Press the Key marked with a "scroll" symbol on the bottom right side of the controller.
- 4.5.2 The lower display will change to SP (set point).
- 4.5.3 Use the up arrow or the down arrow keys to set the desired temperature on the upper display. The B125 will begin to heat, or cool.

- 4.5.4 After entering the new set point, the operator may return to the previous display by pressing the "scroll" Key a second time.

Note: if this step is omitted, the display will return automatically after some seconds.

- 4.5.5 The upper display shows the actual block temperature, the lower display shows the new Set Point temperature.
- 4.5.6 Depending on the ambient temperature and the set point temperature, the B125 will take some time stabilise at the new temperature. The stabilisation process is best watched by reading the reference probe inserted in the block. It is normal for the B125 controller to indicate an overshoot of some degrees on the first approaching a new setpoint.

4.6 **Controller Settings**

- 4.6.1 The B125 controller has been set to optimise stability over the full operating range of temperatures. Customers who wish to customise these settings to optimise a particular temperature are referred to the WEST 6100 handbook supplied with the unit. ASL cannot accept any responsibility for damage caused by incorrect setting of the controller parameters by our customers. The controller configuration settings should not be changed under any circumstances as these relate to the range and alarm functions. Customers are advised to note the configuration settings on their unit before making any changes. See appendix 3 for factory settings.

4.7 **Changing from Centigrade to Fahrenheit mode**

The B125 can operate in Centigrade or Fahrenheit mode.

Firstly the controller parameters need to be noted if they are different to the default ASL settings (for example where different P.I.D terms are used).

To do this enter the "LOC" code (default 8 set by ASL) by pressing the "scroll" button and the up arrow together, the display will show "ULOC" in the lower section. Enter the LOC code using the up and down arrows and press "scroll" to accept.

The controller will now display the operating parameters which can be scrolled through to note the values. Do this by repeatedly pressing the "scroll" key, when back at the start press "scroll" and up together to exit, and the set LED will extinguish. To Alter the range from °C to °F, the input range code has to be changed, a list of these codes can be found in Appendix A of the West Instruments Site Manual. The relevant range of codes are listed under the title "For RTD inputs". The default codes for units leaving the factory are given in Appendix 3 of this manual. To enter the new range the configuration mode has

to be accessed. To do this turn the power off. Turn the power back on and within 30 seconds of power-up, hold down the up and "scroll" keys simultaneously for five seconds.

The controller will then show the current input code selected. This can be changed with the up and down arrow keys. As soon as the value is changed the upper display will flash indicating that the new value has yet to be confirmed, when the value is as required it may be confirmed by pressing the "hand" key, whereupon the display will become static. Next return from the configuration mode by pressing "scroll" and up together. Having returned the display will show the temperature but with all the decimal points showing, indicating that the controller parameters need resetting.

Note: If the input code is changed the values in the setup mode will return to the default values.

Warning:

The setpoint maximum (SPHi) will default to the upper limit of range, as will the high alarm, this would be 537.3°C or 999.1°F.

To enter the setup mode use the "LOC" code as above and re-enter the values noted down except the values in °C or °F which will need changing to new scale. This is very important for safety. The alarm values will need particular care.

The default values can be found for °C or °F in Appendix 3 of this manual.

Another precaution would be to indicate on the front panel that the units are now set to Fahrenheit in case someone assumes Centigrade and sets the temperature dangerously high.

5 **The Temperature Monitor** (if fitted)

- 5.1 The B125 may be optionally fitted with an independent temperature monitor.
- 5.2 The monitor is linked to a DIN connector and terminal block on front of the B125 (see Appendix 2 for wiring details).
- 5.3 To use the independent monitor connect a PRT to either the DIN connector or the terminal block, insert the PRT into the block. The monitor will now display the block temperature in degrees Centigrade.

6 **The RS485 interface** (if fitted)

- 6.1 The B125 controller may be optionally fitted with an RS485 interface. Refer to the WEST 6100 controller manual for instructions on using the RS485.

6.2 **Connections for the interface are:**

RS485	25 Way 'D' type socket (B125)
"A" or XMT + terminal	pin 2
"B" or XMT - terminal	pin 15

6.3 **Using a PC to interface to the RS485 port.**

Personal Computers (IBM compatible) usually 2 serial ports which provide RS232 communication. Typically one might be used as a mouse input and the other spare. If a spare RS232 port is available then by using an RS232 to RS485 converter communication to the metal block calibrator can be achieved. ASL can provide these converters or they can be purchased readily from manufacturers of data acquisition equipment. If the 2nd serial port is already used or doesn't exist in the case of some laptop computers then an alternative is to use a dedicated RS485 card which installed in the computer provides direct RS485 communication.

7 **Achieving the best results using your B125 Metal Block Calibrator**

- 7.1 This section of your manual is written to help you achieve the best results from your B125 Calibrator. ASL has tested this product extensively and the results of these tests can be found in the appendices of this manual. Your Block Calibrator is designed to provide a reference temperature of high stability under the correct operating conditions. The absolute value of this temperature must be measured using a reference temperature probe. The indicated temperature on the temperature controller is not calibrated and cannot be used as a reference. ASL can provide a calibrated reference probe and indicator installed in the B125, or alternatively a more versatile and accurate standalone system. Please ask your representative for details.

7.2 Performance of the Calibrator

The B125 Calibrator reduces the temperature within the block by drawing heat out of the heatsink fins visible from the top panel. Performance will be reduced if the air flow is restricted in any way. In particular check that the Air inlet on the underside of the unit is free from loose material which may get sucked against the fan guard. In a cooler ambient the B125 will be able to achieve a lower block temperature although this is dependent on the loading. No harm will occur if a setpoint lower than the specified minimum is set. However setting a figure higher than the maximum quoted temperature will cause serious and permanent damage to the unit.

7.3 Probe positioning and use of inserts

To ensure the correct orientation of probes in the B125 Metal Block Calibrator the calibrator is fitted with location spigots in each well. When fitting inserts into the B125 ensure that the locating hole in the bottom of the insert mates with the locating spigot.

The top surface of the block has a greater heat loss than the sides and bottom of the block. This gives rise to a variation in temperature at different vertical positions in the block. The block is designed to achieve the minimum possible variation in temperature at any horizontal plane within the block.

To avoid inaccuracies caused by the vertical temperature variations above, the user should use a reference probe of the same type as the probe under test. If this is not possible, the reference probe should be designed to match the physical and thermal characteristics of the probe under test as closely as possible. The insertion depth of the test probe measure point should be exactly the same as the reference probe measure point.

7.4 Probe Contact Area

7.4.1 To achieve the best possible accuracy, all probes that are inserted in the block should have the largest possible contact area with the metal of the block or insert. A good fit for the probe into its well is desirable. It would be possible to achieve an even a greater thermal transfer by using a medium such as heat sink compound, commonly used in the electronics industry, coating the probe to fit in the insert. This is not recommended in anything other than an insert which can be removed for cleaning. The temperature range of the compound must be checked before use.

7.4.2 ASL provide a standard block which is drilled to accommodate 2 x 5/8 " (15.875 mm) diameter inserts.

In addition, ASL provides inserts which can be factory drilled to order, or drilled

by our customers to accommodate different types of probe. As may be seen from the test results in Appendix 1, the temperature difference between inserts may be several tenths of a degree. As previously observed for the probe/block contact area, the contact area between the insert and the block may vary, and the inclusion of a second metal/air/metal boundary will degrade the accuracy that can be obtained when using inserts.

It is important to ensure that the probes are at the same depth within the insert well to achieve a higher matching of the probes temperatures.

7.5 Use of "Twin" Inserts

To obtain maximum accuracy, ASL recommends the use of inserts drilled to accommodate 2 probes within the same insert. These "Twin" inserts may be factory or customer drilled, and allow the qualification of up to 2 different probe types in one calibration run. (Each insert must contain one reference probe and one probe under test). ASL is happy to provide blank inserts for our customers to drill themselves. Due to the possibility of incorrectly sized inserts becoming stuck in the block we recommend the use of factory supplied blanks. We also recommend that the inserts are anodised after drilling to prevent corrosion.

7.6 Condensation

When the calibrator is in use at temperature below the dew point, water will condense on the surface of the block, insert and probes. Normally this is not a problem and can be ignored. When subsequently the water is frozen probes and inserts can become stuck, raise the temperature to free them. It is wise to remove the inserts periodically to empty them of water. Even where the block has been left at an elevated temperature for several hours with probes fitted (60°C) the water will not have evaporated.

7.7 Supply Voltage Variations

As with all electrical equipment, your B125 is designed to operate most efficiently on a stable electrical supply. Transient variations in supply voltage will vary the quantity of heat output by the Heating element, and may adversely affect the temperature stability of the equipment. Customers should therefore make every effort to ensure a stable supply during testing and calibration.

7.8 Ambient Temperature Variations

The B125 Calibrator is unaffected by changes in ambient temperature taking place over several hours. Sudden temperature changes will cause a temporary disturbance in block temperature. For best results, we recommend that the B125 is used in a draught free environment of constant temperature.

7.9 Insulating Probe Stems

The B125 is supplied with two foam pipe lagging tubes. These are beneficial to reduce the stem conduction of the probes to the ambient temperatures.

Where long probes are used position the lagging around the probes and secure with releasable cable ties provided.

An increase in stability can be achieved by avoiding draughts on the probe stems.

ASL CUSTOMER AFTER SALES SUPPORT

For technical support, repair, warranty and service enquiries please contact:-

Automatic Systems Laboratories Inc.
187 Ballardvale Street
Wilmington
MA 01887

Tel: 508 658 0000
Fax: 508 658 5444

Returned Goods

All returned goods should be sent carriage paid, adequately packaged in original cartons or custom cases if available, to the above address.

Documentation

The shipment should include:

- a Your goods return note, a delivery note or an export invoice stating clearly GOODS RETURNED FOR REPAIR.
- b Your company/establishment order or contract reference number.
- c The name of the purchasing and technical contact.
- d A brief fault report.

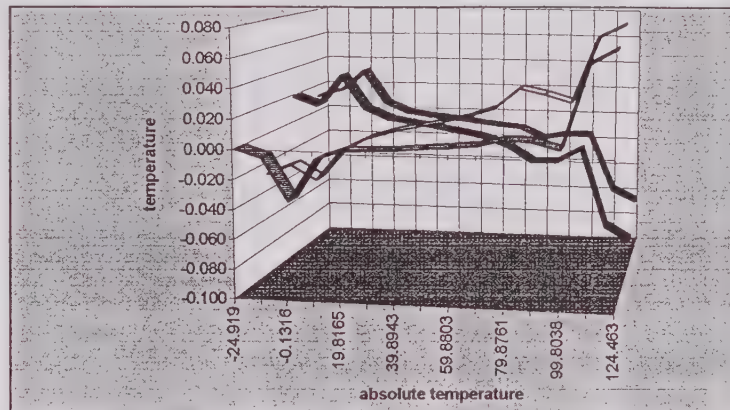
B125 Block Calibrator test Results. Data from second production model B125-02-002 28/09/94							
Data capture using T25/02s,F250,SB250,Soft250 and Excel 5.0(tm)							
Temperature Results from 6500 readings							
-25°C							
		Channel 1	Channel 2	Channel 3	Channel 4		
count		104	104	104	104		
average		-24.9181	-24.89	-24.9368	-24.9298		
max		-24.904	-24.877	-24.923	-24.916		
min		-24.932	-24.903	-24.95	-24.944		
range mK		0.028	0.026	0.027	0.028		
stability $\pm$ mK		0.014	0.013	0.014	0.014		
duration	hh:mm:ss	00:31:04					
-10°C							
count		75	75	75	75		
average		-10.0421	-10.0264	-10.0599	-10.0638		
max		-9.999	-9.982	-10.036	-10.037		
min		-10.067	-10.053	-10.089	-10.093		
range mK		0.068	0.071	0.053	0.056		
stability		0.034	0.036	0.027	0.028		
duration	hh:mm:ss	00:22:49					
0°C							
count		80	80	80	80		
average		-0.09693	-0.10008	-0.16628	-0.16324		
max		-0.039	-0.055	-0.155	-0.149		
min		-0.145	-0.132	-0.174	-0.175		
range mK		0.106	0.077	0.019	0.026		
stability		0.053	0.039	0.009	0.013		
duration	hh:mm:ss	00:23:06					
10°C							
count		81	81	81	81		
average		9.847667	9.851815	9.831037	9.834358		
max		9.873	9.868	9.846	9.861		
min		9.82	9.832	9.815	9.807		
range mK		0.053	0.036	0.031	0.054		
stability		0.026	0.018	0.016	0.027		
duration	hh:mm:ss	00:24:18					
20°C							
count		186	186	186	186		
average		19.81672	19.81832	19.81359	19.81733		
max		19.845	19.83	19.832	19.851		
min		19.787	19.798	19.795	19.787		
range mK		0.058	0.032	0.037	0.064		
stability		0.029	0.016	0.018	0.032		

30°C							
count		95		95		95	
average		29.83955		29.83621		29.83978	
max		29.86		29.848		29.854	
min		29.822		29.824		29.826	
range mK		0.038		0.024		0.028	
stability		0.019		0.012		0.014	
duration	hh:mm:ss	00:28:32					
40°C							
count		74		74		74	
average		39.89351		39.88726		39.89712	
max		39.922		39.903		39.916	
min		39.87		39.869		39.879	
range mK		0.052		0.034		0.037	
stability		0.026		0.017		0.018	
duration	hh:mm:ss	00:22:28					
50°C							
count		87		87		87	
average		49.90639		49.89798		49.91462	
max		49.944		49.923		49.942	
min		49.888		49.88186		49.901	
range mK		0.056		0.041138		0.041	
stability		0.028		0.021		0.020	
duration	hh:mm:ss	00:26:14					
60°C							
count		84		84		84	
average		59.87664		59.86538		59.88944	
max		59.909		59.89		59.914	
min		59.84		59.844		59.87	
range mK		0.069		0.046		0.044	
stability		0.034		0.023		0.022	
duration	hh:mm:ss	00:25:57					
70°C							
count		144		144		144	
average		69.86443		69.84873		69.88531	
max		69.888		69.864		69.905	
min		69.84		69.826		69.866	
range mK		0.048		0.038		0.039	
stability		0.024		0.019		0.020	
duration	hh:mm:ss	00:44:52					

80°C				
count		81	81	81
average		79.86668	79.84077	79.90233
max		79.907	79.873	79.93
min		79.835	79.818	79.884
range mK		0.072	0.055	0.046
stability		0.036	0.028	0.023
duration	hh:mm:ss	00:25:14		
90°C				
count		91	91	91
average		89.92387	89.90084	89.95795
max		89.957	89.92	89.983
min		89.892	89.877	89.932
range mK		0.065	0.043	0.051
stability		0.032	0.022	0.026
duration	hh:mm:ss	00:28:36		
100°C				
count		81	81	80
average		99.79965	99.77689	99.81973
max		99.812	99.787	99.834
min		99.784	99.763	99.804
range mK		0.028	0.024	0.03
stability		0.014	0.012	0.015
duration	hh:mm:ss	00:25:25		
110°C				
count		125	125	125
average		109.4872	109.4752	109.6186
max		109.502	109.49	109.634
min		109.47	109.457	109.601
range mK		0.032	0.033	0.033
stability		0.016	0.017	0.017
duration	hh:mm:ss	00:40:52		
125°C				
count		106	106	106
average		124.3942	124.3834	124.5458
max		124.409	124.398	124.563
min		124.37	124.36	124.521
range mK		0.039	0.038	0.042
stability		0.020	0.019	0.021
duration	hh:mm:ss	00:33:35		

B125 Block Calibrator test Results. Data from second production model B125-02-002 28/09/94							
Data capture using T25/02s,F250,SB250,Soft250 and Excel 5.0(tm)							
These readings are the average temperatures for each channel taken from 6500 results							
All temperatures in Deg C				Twin inserts			
Channel 0	Channel 1	Channel 2	Channel 3	Range	Ch0-Ch1	Ch2-3	
-24.9181	-24.89	-24.9368	-24.9298	0.047	-0.028	-0.007	
-10.0421	-10.0264	-10.0599	-10.0638	0.037	-0.016	0.004	
-0.09693	-0.10008	-0.16628	-0.16324	0.069	0.003	-0.003	
9.847667	9.851815	9.831037	9.834358	0.021	-0.004	-0.003	
19.81672	19.81832	19.81359	19.81733	0.005	-0.002	-0.004	
29.83955	29.83621	29.83978	29.84276	0.007	0.003	-0.003	
39.89351	39.88726	39.89712	39.89927	0.012	0.006	-0.002	
49.90639	49.89798	49.91462	49.9162	0.018	0.008	-0.002	
59.87664	59.86538	59.88944	59.88955	0.024	0.011	0.000	
69.86443	69.84873	69.88531	69.88065	0.037	0.016	0.005	
79.86668	79.84077	79.90233	79.89457	0.062	0.026	0.008	
89.92387	89.90084	89.95795	89.94723	0.057	0.023	0.011	
99.79965	99.77689	99.81973	99.81879	0.043	0.023	0.001	
109.4872	109.4752	109.6186	109.6033	0.143	0.012	0.015	
124.3942	124.3834	124.5458	124.5287	0.162	0.011	0.017	
Overall	Difference from average						
Average	Channel 0	Channel 1	Channel 2	Channel 3			
-24.9187	-0.001	-0.029	0.018	0.011			
-10.048	-0.006	-0.022	0.012	0.016			
-0.13163	-0.035	-0.032	0.035	0.032			
9.841219	-0.006	-0.011	0.010	0.007			
19.81649	0.000	-0.002	0.003	-0.001			
29.83957	0.000	0.003	0.000	-0.003			
39.89429	0.001	0.007	-0.003	-0.005			
49.9088	0.002	0.011	-0.006	-0.007			
59.88025	0.004	0.015	-0.009	-0.009			
69.86978	0.005	0.021	-0.016	-0.011			
79.87609	0.009	0.035	-0.026	-0.018			
89.93247	0.009	0.032	-0.025	-0.015			
99.80376	0.004	0.027	-0.016	-0.015			
109.5461	0.059	0.071	-0.072	-0.057			
124.463	0.069	0.080	-0.083	-0.066			

Temperature deviations from normal



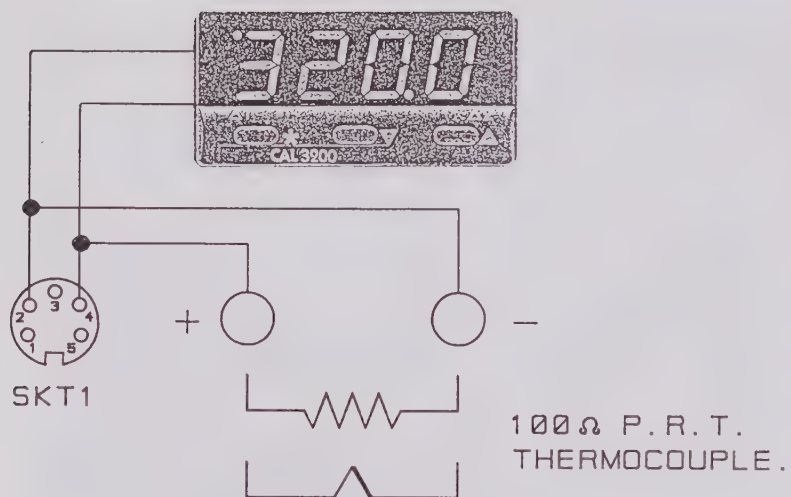


Fig. 3 Wiring Diagram for Independent Indicator

Appendix 3

The factory Configuration of the West 6100 Controller is:-

Centigrade Settings

-inpt = 7222 (-100.9 to + 537.0°C)

Ctrl = rEu

ALA1 = none

ALA2 = P-hi

Inhi = none

USE 2 = out 2

ULOC = 8

Filt = 0.0

Pb 1 = 1.0 Pb2 = 1.0

OFFS = 0 OUT 1 = Not user settable

rSET = 0.03 rATE = 0.01 0L = 0

biAS = 25

OPhi = 60

h-A2 = 126

PoEn = 0

CoEn = 1*

SPhi = 125 SPLo = - 50

LAEn = 0 APt = 0

rPEn = 0 SPSt = 1

Fahrenheit Settings

-inpt = 7223 (-149.7 to + 999.1°F)

Ctrl = rEu

ALA1 = none

ALA2 = P-hi

Inhi = none

USE 2 = out 2

ULOC = 8

Filt = 0.0

Pb 1 = 1.0 Pb2 = 1.0

OFFS = 0 OUT 1 = Not user settable

rSET = 0.03 rATE = 0.01 0L = 0

biAS = 25

OPhi = 60

h-A2 = 259

PoEn = 0

CoEn = 1*

SPhi = 257 SPLo = - 58

LAEn = 0 APt = 0

rPEn = 0 SPSt = 1

* If RS485 communications are fitted.

IMPORTANT: Read section 4.6 before altering the controllers parameters, in

particular the setpoint limits. Exceeding the maximum temperature may cause permanent damage.

MP MASTER



MA34186